IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

WSOU INVESTMENTS, LLC d/b/a BRAZOS LICENSING AND DEVELOPMENT,	§	CIVIL ACTION NO. 6:20-cv-476
Plaintiff,	§	**JURY TRIAL DEMANDED**
v.	§	
DELL TECHNOLOGIES INC., DELL INC., AND EMC CORPORATION,	§	
Defendants.	§	

ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff WSOU Investments, LLC d/b/a Brazos Licensing and Development ("Brazos" or "Plaintiff"), by and through its attorneys, files this Complaint for Patent Infringement against Dell Technologies Inc., Dell Inc., and EMC Corporation (collectively, "Defendants") and alleges:

NATURE OF THE ACTION

1. This is a civil action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. §§ 1, et seq., including §§ 271, 281, 284, and 285.

THE PARTIES

2. Brazos is a limited liability corporation organized and existing under the laws of Delaware, with its principal place of business at 605 Austin Avenue, Suite 6, Waco, Texas 76701.

3. On information and belief, defendant Dell Technologies Inc. is a Delaware corporation with a principal place of business at One Dell Way, Round Rock, Texas 78682.

4. On information and belief, defendant Dell Inc. is a Delaware corporation with a principal place of business at One Dell Way, Round Rock, Texas 78682. Dell Inc. is wholly owned by its corporate parent, Dell Technologies Inc.

5. On information and belief, defendant EMC Corporation is a Massachusetts corporation with a principal place of business at One Dell Way, Round Rock, Texas 78682. EMC Corporation is wholly owned by its corporate parent, Dell Technologies Inc.

JURISDICTION AND VENUE

6. This is an action for patent infringement which arises under the Patent Laws of the United States, in particular, 35 U.S.C. §§ 271, 281, 284, and 285.

7. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a).

8. This Court has specific and general personal jurisdiction over each defendant pursuant to due process and/or the Texas Long Arm Statute, because each defendant has committed acts giving rise to this action within Texas and within this judicial district. The Court's exercise of jurisdiction over each defendant would not offend traditional notions of fair play and substantial justice because each defendant has established minimum contacts with the forum. For example, on information and belief, each defendant has committed acts of infringement in this judicial district, by among other things, selling and offering for sale products that infringe the asserted patent, directly or through intermediaries, as alleged herein.

9. Venue in the Western District of Texas is proper pursuant to 28 U.S.C. §§1391 and/or 1400(b). Each defendant has established places of business in the Western District of Texas. Each defendant is registered to do business in Texas. Upon information and belief, each defendant has transacted business in this District and has committed acts of infringement in this District.

COUNT ONE - INFRINGEMENT OF U.S. PATENT NO. 7,565,435

10. Brazos re-alleges and incorporates by reference the preceding paragraphs of this Complaint.

11. On July 21, 2009, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 7,565,435 ("the '435 Patent"), entitled "Method for Obtaining the Best Connectivity Achievable Within Virtual Local Area Networks." A true and correct copy of the '435 Patent is attached as Exhibit A to this Complaint.

12. Brazos is the owner of all rights, title, and interest in and to the '435 Patent, including the right to assert all causes of action arising under the '435 Patent and the right to any remedies for the infringement of the '435 Patent.

13. Defendants make, use, sell, offer for sale, import, and/or distribute in the United States, including within this judicial district, products such as, but not limited to, networking switches, including but not limited to, PowerSwitch N Series switches (collectively, the "Accused Products").

14. The Accused Products support bridging using the Multiple Spanning Tree (MSTP) protocol. In an MSTP-based computer network, they may be configured to have bridge ports communicating by forwarding data frames to bridge ports found in other network devices.

Dell EMC PowerSwitch N Series

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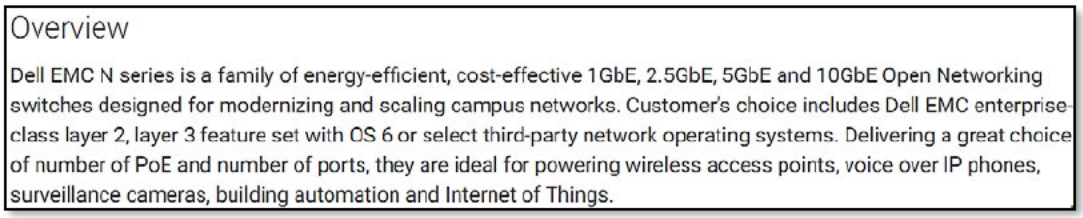

Overview

Dell EMC N series is a family of energy-efficient, cost-effective 1GbE, 2.5GbE, 5GbE and 10GbE Open Networking switches designed for modernizing and scaling campus networks. Customer's choice includes Dell EMC enterprise-class layer 2, layer 3 feature set with OS 6 or select third-party network operating systems. Delivering a great choice of number of PoE and number of ports, they are ideal for powering wireless access points, voice over IP phones, surveillance cameras, building automation and Internet of Things.

https://www.dell.com/support/article/us/en/04/sln316270/dell-emc-powerswitch-n-series

How to manage Multiple Spanning Tree (MSTP) using Command Line on Dell Networking PowerConnect Campus Switches

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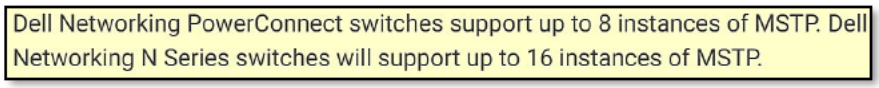

Dell Networking PowerConnect switches support up to 8 instances of MSTP. Dell Networking N Series switches will support up to 16 instances of MSTP.

https://www.dell.com/support/article/en-us/how10525/how-to-manage-multiple-spanning-tree-mstp-using-command-line-on-dell-networking-powerconnect-campus-switches?lang=en

Spanning Tree Protocol Features

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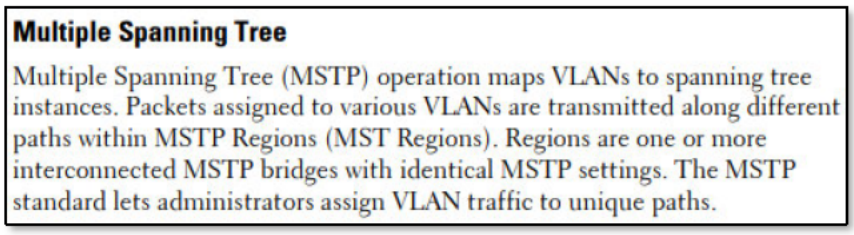

Multiple Spanning Tree

Multiple Spanning Tree (MSTP) operation maps VLANs to spanning tree instances. Packets assigned to various VLANs are transmitted along different paths within MSTP Regions (MST Regions). Regions are one or more interconnected MSTP bridges with identical MSTP settings. The MSTP standard lets administrators assign VLAN traffic to unique paths.

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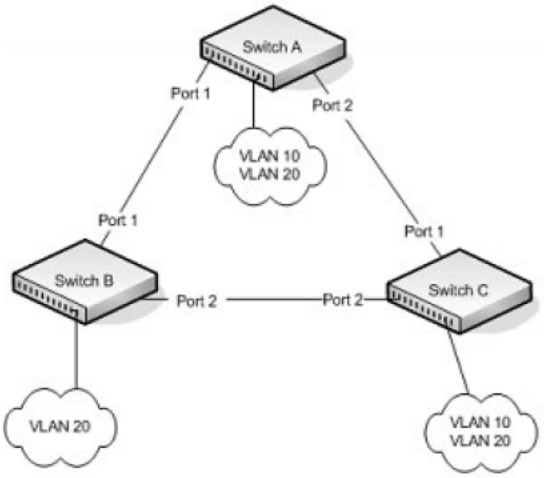
Figure 22-1. Small Bridged Network



Assume that Switch A is elected to be the Root Bridge, and Port 1 on Switch B and Switch C are calculated to be the root ports for those bridges, Port 2 on Switch B and Switch C would be placed into the Blocking state. This creates a loop-free topology. End stations in VLAN 10 can talk to other devices in VLAN 10, and end stations in VLAN 20 have a single path to communicate with other VLAN 20 devices.

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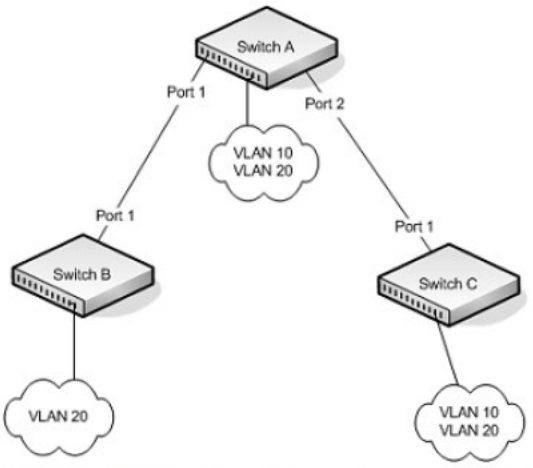
15. The Accused Products may be configured with multiple spanning-tree instances (MSTIs) having a topology covering the topology of desired virtual local area networks (VLANs).

Figure 22-2. Single STP Topology



For VLAN 10 this single STP topology is fine and presents no limitations or inefficiencies. On the other hand, VLAN 20's traffic pattern is inefficient. All frames from Switch B will have to traverse a path through Switch A before arriving at Switch C. If the Port 2 on Switch B and Switch C could be used, these inefficiencies could be eliminated. MSTP does just that, by allowing the configuration of MSTIs based upon a VLAN or groups of VLANs. In this simple case, VLAN 10 could be associated with Multiple Spanning Tree Instance (MSTI)1 with an active topology similar to Figure 22-2 and VLAN 20 could be associated with MSTI 2 where Port 1 on both Switch A and Switch B begin discarding and all others forwarding. This simple modification creates an active topology with a better distribution of network traffic and an increase in available bandwidth.

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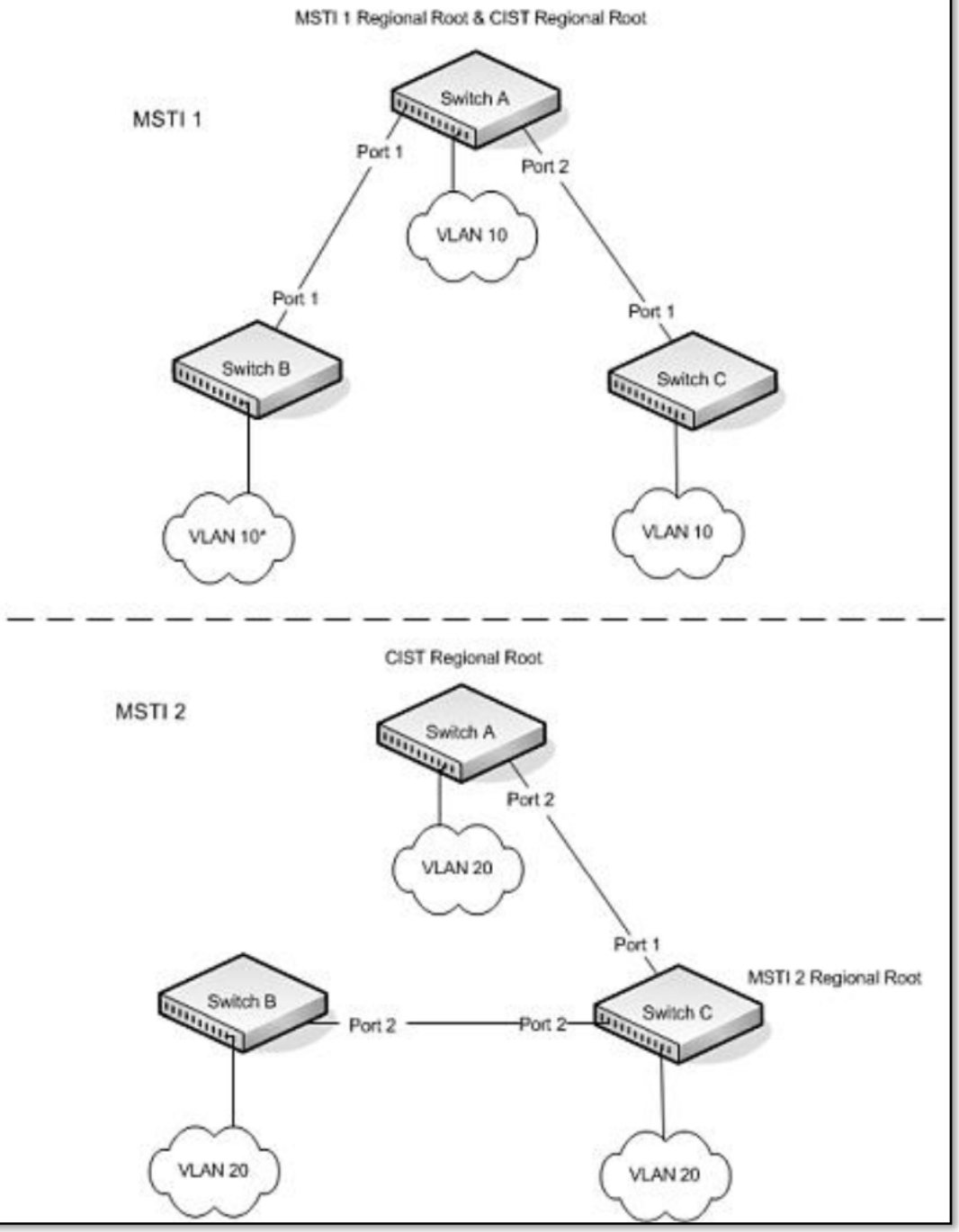
Figure 22-3. Logical MSTP Environment



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16. The Accused Products assign a VLAN membership on ports to create a VLAN member set which is part of the active spanning tree protocol topology. Further, the active VLAN member sets indicate the ports within one of the MTSIs for forwarding data traffic destined to members of the associated VLAN.

Virtual Local Area Network Supported Features

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The switch supports the Generic Attribute Registration Protocol (GARP). GARP VLAN Registration Protocol (GVRP) relies on the services provided by GARP to provide IEEE 802.1Q-compliant VLAN pruning and dynamic VLAN creation on 802.1Q trunk ports. When GVRP is enabled, the switch registers and propagates VLAN membership on all ports that are part of the active spanning tree protocol topology.

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Configuring VLANs (Web)

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The **VLAN Membership** tables display which Ports and LAGs are members of the VLAN, and whether they're tagged (T), untagged (U), or forbidden (F). The tables have two rows: **Static** and **Current**. Only the **Static** row is configurable. The **Current** row is updated either dynamically through GVRP or when the **Static** row is changed and **Apply** is clicked.

There are two tables on the page:

- **Ports** — Displays and assigns VLAN membership to ports. To assign membership, click in **Static** for a specific port. Each click toggles between U, T, and blank. See Table 21-7 for definitions.

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17. The Accused Products may be configured to set a relatively higher path cost of one of the ports of a device within the MSTI (for example when the port is not part of a member set or so as to discourage data frames from forwarding on the non-VLAN membership ports) and set a

relatively low path cost(for example, to promote forwarding of traffic data from designated or active ports).

Spanning Tree Protocol Features

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Spanning Tree Port Settings

The STP feature supports a variety of per-port settings including path cost, priority settings, Port Fast mode, STP Root Guard, Loop Guard, TCN Guard, and Auto Edge. These settings are also configurable per-LAG.

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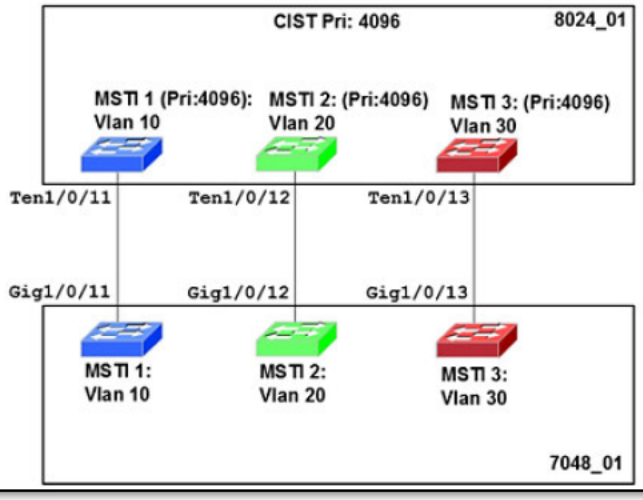
MSTP with Multiple Forwarding Paths

Consider the physical topology shown in Figure 22-4. It might be assumed that MSTI 2 and MSTI 3 would follow the most direct path for VLANs 20 and 30. However, using the default path costs, this is not the case. MSTI operates without considering the VLAN membership of the ports. This results in unexpected behavior if the active topology of an MSTI depends on a port that is not a member of the VLAN assigned to the MSTI and the port is selected as root port. In this configuration, port TE 1/0/11 is selected as the root port and ports TE1/0/12 and TE1/0/13 are blocked. To resolve the issue, set the port path cost of the directly connected links to allow the MSTIs to connect directly.

Figure 22-4. MSTP with Multiple Forwarding Paths



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To support the redundant link using VLAN 200 running in MST instance 2 across gi1/0/8, configure the peer link with a high path cost for instance 2 on the primary switch to discourage forwarding across the peer link. Likewise, on the MLAG secondary switch, set the bridge priority to 0 for instance 2 to encourage the secondary switch to select the root path. Be sure to name the MST domain.

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How Does STP Work?

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After the root bridge is elected, each switch finds the lowest-cost path to the root bridge. The port that connects the switch to the lowest-cost path is the root port on the switch. The switches in the spanning tree also determine which ports have the lowest-path cost for each segment. These ports are the designated ports. Only the root ports and designated ports are placed in a forwarding state to send and receive traffic. All other ports are put into a blocked state to prevent redundant paths that might cause loops. Both internal and external path costs can be configured. For STP, RSTP, and the MSTP CIST, only the external path costs are utilized in the lowest path cost calculation. The internal path cost is used by the MST instances.

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18. The Accused Products may set a path cost for a forwarding port based on port speed.

Configuring STP Interface Settings

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spanning-tree cost *cost*	Specify the spanning tree path cost for the port. (Range: 0–200,000,000). The default cost is 0, which signifies that the cost is automatically calculated based on port speed.

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19. The Accused Products support a DirectLink Rapid Convergence feature, which reestablishes connectivity in one of the MSTIs experiencing failure by activating links which ensure that the connectivity within the VLAN mapped in a MSTI is not lost.

DirectLink Rapid Convergence

The DirectLink Rapid Convergence (DRC) feature is designed for an access-layer switch that has redundant blocked uplinks. It operates on ports blocked by spanning tree. DRC can be configured for the entire switch; it cannot be enabled for individual VLANs.

> The DRC feature is based on the concept of an uplink group. An uplink group consists of all the ports that provide a path to the root bridge (the root port and any blocked ports). If the root port fails, the blocked port with next lowest cost from the uplink group is selected and immediately put in the forwarding state without going through the standard spanning tree listening and learning states.

> To accelerate convergence time once DRC has switched over to a new root port, STP-PV transmits dummy packets out the new root port, with the source MAC addresses taken from its forwarding table. The destination

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> **DRC and Link Up Events**
>
> In the event of failure of the primary uplink, a replacement uplink is immediately selected from the uplink group and put into the forwarding state. If another port is enabled that, in accordance with STP rules, should become the primary uplink (root port), the switch delays migrating to the new port for twice the forwarding delay. The purpose of this delay is two-fold:
>
> - Stability—If the primary uplink is flapping, reenabling the link immediately can introduce additional instability into the network.
> - Reduced Traffic Loss—DRC moves a port into the forwarding state as soon as it is up, but the connected port obeys the usual STP rules; i.e. it goes through the listening and learning stages, which take 15 seconds each by default. Delaying the switchover allows the connected port to go to through the listening and learning states while the switch is still transmitting packets on the original uplink.
>
> The optimal behavior is to keep the current uplink active and hold the new port in the blocked state for twice the forwarding delay.

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20. In view of preceding paragraphs, each and every element of at least claim 1 of the '435 Patent is found in the Accused Products.

21. Defendants continue to directly infringe at least one claim of the '435 Patent, literally or under the doctrine of equivalents, by making, using, selling, offering for sale,

importing, and/or distributing the Accused Products in the United States, including within this judicial district, without the authority of Brazos.

22. Defendants have received notice and actual or constructive knowledge of the '435 Patent since at least the date of service of this Complaint.

23. Since at least the date of service of this Complaint, through its actions, Defendants have actively induced product makers, distributors, retailers, and/or end users of the Accused Products to infringe the '435 Patent throughout the United States, including within this judicial district, by, among other things, advertising and promoting the use of the Accused Products in various websites, including providing and disseminating product descriptions, operating manuals, and other instructions on how to implement and configure the Accused Products. Examples of such advertising, promoting, and/or instructing include the documents at:

- https://www.dell.com/support/article/us/en/04/sln316270/dell-emc-powerswitch-n-series
- https://www.dell.com/support/article/en-us/how10525/how-to-manage-multiple-spanning-tree-mstp-using-command-line-on-dell-networking-powerconnect-campus-switches?lang=en
- https://cc.cnetcontent.com/inlinecontent/mediaserver/len/bf8/bd5/bf8bd5f94d05419098c68e753796699e/original.pdf

24. Since at least the date of service of this Complaint, through its actions, Defendants have contributed to the infringement of the '435 Patent by having others sell, offer for sale, or use the Accused Products throughout the United States, including within this judicial district, with knowledge that the Accused Products infringe the '435 Patent. The Accused Products are especially made or adapted for infringing the '435 Patent and have no substantial non-infringing use. For example, in view of the preceding paragraphs, the Accused Products contain functionality which is material to at least one claim of the '435 Patent.

JURY DEMAND

Brazos hereby demands a jury on all issues so triable.

REQUEST FOR RELIEF

WHEREFORE, Brazos respectfully requests that the Court:

(A) Enter judgment that Defendants infringe one or more claims of the '435 Patent literally and/or under the doctrine of equivalents;

(B) Enter judgment that Defendants have induced infringement and continue to induce infringement of one or more claims of the '435 Patent;

(C) Enter judgment that Defendants have contributed to and continue to contribute to the infringement of one or more claims of the '435 Patent;

(D) Award Brazos damages, to be paid by Defendants in an amount adequate to compensate Brazos for such damages, together with pre-judgment and post-judgment interest for the infringement by Defendants of the '435 Patent through the date such judgment is entered in accordance with 35 U.S.C. § 284, and increase such award by up to three times the amount found or assessed in accordance with 35 U.S.C. § 284;

(E) Declare this case exceptional pursuant to 35 U.S.C. § 285; and

(F) Award Brazos its costs, disbursements, attorneys' fees, and such further and additional relief as is deemed appropriate by this Court.

Dated: June 2, 2020

Respectfully submitted,

/s/ James L. Etheridge
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Ryan S. Loveless

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